

# autoEXACT<sup>®</sup>

by **DHC**

Model AE150/AE300/AE500

MULTI-USE SMART BATTERY CHARGER



Certified by  
California BCS Regulations



1.5A

5A

3A

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Voltage: 12V

Amperage: by Models

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## OWNER'S MANUAL

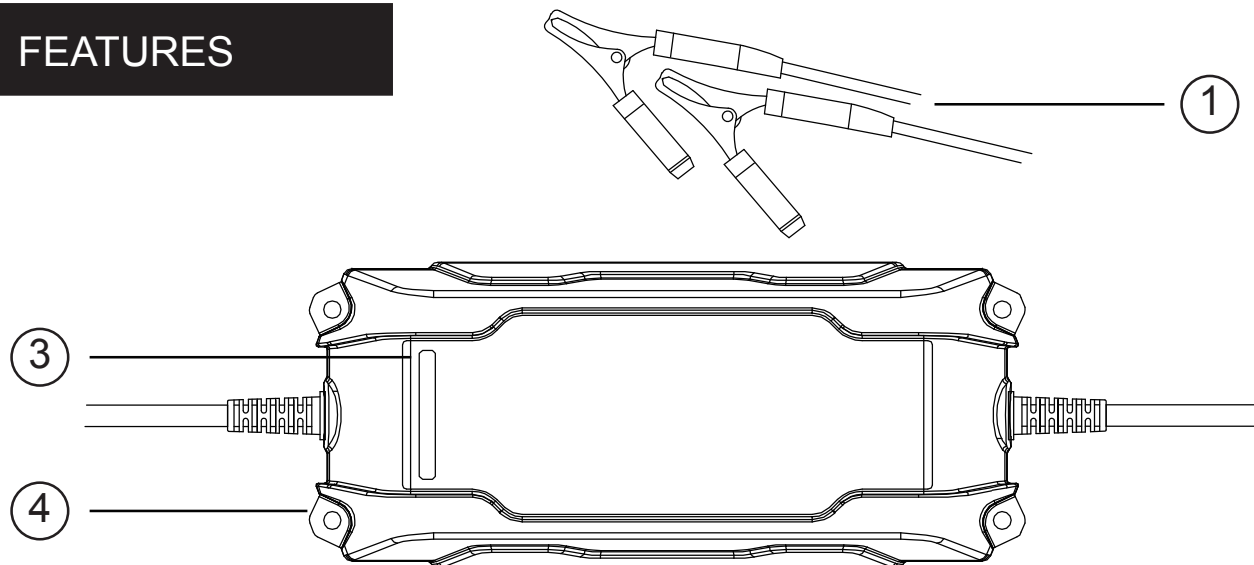
READ ENTIRE MANUAL BEFORE USING THIS PRODUCT

## MODEL NO. AE150/AE300/AE500 MULTI-USE SMART BATTERY CHARGER

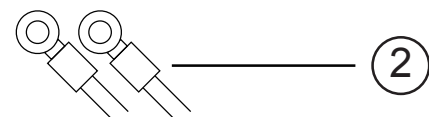
### SPECIFICATIONS

Input Voltage	220V - 240V AC 50Hz (E)
	110V - 120V AC 60Hz (A)
Output Current Rating	12V - 1.5A/3A/5A Max.
Maximum Charge Voltage	14.8V
Size	17" L x 7.3" W x 4.8" H
Weight	1.1 lbs

### FEATURES



1. Battery Clip Cable Assembly
2. Ring Terminal Cable Assembly
3. LED Indicators
4. Mounting Holes



## IMPORTANT SAFETY INSTRUCTIONS

### READ AND SAVE THIS SAFETY AND INSTRUCTION MANUAL

- 1.** This manual contains important safety and operating instructions for this battery charger/maintainer. Please read, understand and follow these instructions and precautions carefully.
- 2.** Use this charger only on 12 volts LEAD ACID, AGM and GELLED ELECTROLYTE (GEL-CELL) batteries. Do not attempt to use on other voltages and types of batteries (DRY CELL, NICKEL CADMIUM, NICKEL METAL HYDRIDE, etc.) commonly found in small home appliances. This may cause chargers and batteries to burst, resulting in damage or injury to person and property.
- 3.** Do not expose this charger to direct sunlight, rain or snow.
- 4.** If the battery is installed, please make sure that the vehicle is turned off all loads and no loads are presented.
- 5.** Do not use attachments to this charger that are not recommended. Non-recommended attachments may result in injury, electric shock, or fire and voids the warranty.
- 6.** To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.
- 7.** If it is necessary to use an extension cord, it should be properly grounded cord. Use of improper extension cord could result in a risk of fire and electric shock.
- 8.** Do not operate charger with damaged cord or plug – replace the cord or plug immediately.
- 9.** Do not operate charger if it receives a sharp blow, been dropped, or otherwise damaged in any way; take it to an authorized service center for repair.
- 10.** Do not disassemble charger; take it to an authorized service center for repair. When service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
- 11.** To prevent injury during cleaning or maintenance, disconnect all batteries and move them to clear access to the unit. Unplug this

charger from the wall outlet. Use a slightly dampened cloth to clean the housing and lead sets. Do not use solvents or soaps.

**12.** Place the power cords in a location where will not be stepped on, tripped over, or subjected to stress or abuse of any kind.

**13.** Never attempt to charge a frozen battery. Allow the battery to return to room temperature before connection. Suggested operation range 0°C (32°F) to 50°C (122°F) in ambient temperature.

**14.** Never use this charger in or on any boat or watercraft directly. You must remove the battery from the boat or watercraft and charge the battery at the properly installed location of this charger.

**15.** It is not suggested to expose the charger to moisture and should not be subjected to inclement weather.

## PERSONAL PRECAUTIONS

### RISK OF EXPLOSIVE GASES

**1.** Working in the vicinity of a lead acid battery is dangerous. Battery generate explosive gases during operation. For this reason, it is of utmost importance that you follow the instructions each time you use the charger.

**2.** To reduce risk of battery explosion, follow these instructions and those published by the battery manufacturer and manufacturer of any equipment you intend to use in the vicinity of the battery. Observe cautionary markings on these items.

**3.** Someone should be within range of your voice or close enough to come to your aid when you work near a lead acid battery.

**4.** Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing or eyes.

**5.** Wear complete eye protection and protective clothing.

**6.** Avoid touching eyes while working near battery.

**7.** Be extra cautious to reduce risk of dropping a metal tool onto the battery. It could spark or short-circuit the battery or other electrical

parts and could cause an explosion.

**8.** Remove personal metal items such as rings, bracelets, necklaces and watches when working with a lead acid battery. It can produce a short circuit current high enough to weld a ring or the like to metal causing a severe burn.

**9.** This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

**10.** Children should be supervised to ensure that they do not play with the appliance.

## PREPARING TO CHARGE

### **RISK OF CONTACT WITH BATTERY ACID. BATTERY ACID IS A HIGHLY CORROSIVE SULFURIC ACID.**

- 1.** Be sure area around battery is well ventilated while battery is being charged. Gas can be forcefully blown away by using a piece of cardboard or other nonmetallic material as a fan.
- 2.** Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
- 3.** Inspect the battery for cracked or broken case or cover. If battery is damaged, do not use charger.
- 4.** If the battery is not sealed maintenance free, add distilled water in each cell until battery acid reaches level specified by the manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions.
- 5.** If necessary to remove battery from vehicle to charge, always remove ground terminal from battery first. Make sure all accessories in the vehicle are off to ensure you do not cause any arcing.
- 6.** Study all battery manufacturer's specific precautions such as

removing or not removing cell caps while charging and recommended rates of charge.

7. Determine voltage of battery by referring to car owner's manual and make sure it matches output rating of battery charger.
8. If the battery and terminals have a white or bluish crust on them, the charging system may be having problem. These problems should be corrected before the battery is replaced after charging.

## CHARGER/MAINTAINER LOCATION

### **RISK OF EXPLOSION AND CONTACT WITH BATTERY ACID.**

1. Locate charger as far away from battery as DC cables permit.
2. Never place charger directly above battery being charged. Gases from battery will corrode and damage charger.
3. Never allow battery acid to drip on charger when reading gravity or filling battery.
4. Do not operate charger in a closed area or restrict ventilation in any way.
5. Do not set a battery on top of charger.

## SETTING UP & OPERATIONS

1. Make sure the room has plenty of ventilation.
2. Mount this charger away from any vehicle repair or service. Make sure never to start or run an engine near the batteries being charged.
3. Be sure the total amperage used by this charger should not exceed the amperage capacity of the supply source. If you do not know how to determine this, have a qualified electrician determine the capacity for you.
4. Connect and disconnect DC output clips only after setting any charger switches to off position and removing AC cord from electric outlet. Never allow clips to touch each other.

5. Make sure the battery terminals are clean. Wire brush them if necessary. Clamp the black end (NEG, -) to the negative battery terminal. Clamp the red end (POS, +) to the positive battery terminal.
6. Connect the charger to a grounded power receptacle that is wired in compliance with local electrical codes.

Note that side mounted batteries will require the insertion of a lead post adapter. Plain bolts are not safe. They will not allow for accurate reading and should not be used.

## CHARGE TIME CALCULATION

This charger has a rated output of Ampere. (by models) These outputs will vary with the age and condition of the battery being charged.

Find your battery's rating on the chart below, and note the charge time given for each charger setting.

Use the following table to more accurately determine the time it will take to bring a battery to full charge. Identify where your battery fits into the chart.

BATTERY SIZE (RATING)		AE150	AE300	AE500
Motorcycle, Garden Tractor, etc.	100 CCA	5 hrs	3 hrs	NR
	120 CCA	6 hrs	3.5 hrs	NR
Cars, Trucks, Pickup, etc.	200 CCA	M	6 hrs	3.5 hrs
	300 CCA	M	8 hrs	6 hrs
	400 CCA	M	11 hrs	7.5 hrs
	500 CCA	M	15 hrs	10 hrs
	600 CCA	M	18 hrs	12 hrs
	750 CCA	M	23 hrs	15 hrs

NR: Not Recommended    M: Maintenance



## CHARGING WHEN BATTERY IS INSTALLED IN VEHICLE

1. Position the AC and DC cables to reduce the risk of damage by the hood, door and moving or hot engine parts.  
NOTE that if it is necessary to close the hood during the charging process, ensure that the hood does not touch the metal part of the battery clips or cut the insulation of the cables.
2. Stay clear of fan blades, belts, pulleys and other parts that can cause injury.
3. Determine which post of the battery is grounded (connected) to the chassis. If the negative post is grounded to the chassis (as in most vehicles), see step to **negative-grounded vehicle**. If the positive post is grounded to the chassis, see step to **positive-grounded vehicle**.

## FOR A NEGATIVE-GROUNDED VEHICLE

Connect the POSITIVE (red) clip from the battery charger to the POSITIVE (POS, +) ungrounded post of the battery. Connect the NEGATIVE (black) clip to the vehicle chassis or engine block away from the battery. Do not connect the clip to the vehicle chassis or engine block sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.

## FOR A POSITIVE-GROUNDED VEHICLE

Connect the NEGATIVE (black) clip from the battery charger to the NEGATIVE (NEG, -) ungrounded post of the battery. Connect the POSITIVE (red) clip to the vehicle chassis or engine block away from the battery. Do not connect the clip to the carburetor, fuel lines or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.

Connect the AC supply cord to the electrical outlet for processing the charging.



## CHARGING WHEN BATTERY IS OUTSIDE VEHICLE

1. Connect the POSITIVE (red) charger clip to the POSITIVE (POS, +) post of the battery.
2. Connect the NEGATIVE (black) charger clip to the NEGATIVE (NEG, -) post of the battery.
3. Connect the AC supply cord to the electrical outlet.
4. When disconnecting the charger, always do so in the reverse order of the connecting procedure and break the first connection while as far away from the battery as practical.

NOTE that a marine battery must be removed and charged on shore. To charge it onboard requires equipment specially designed for marine use.

## AC CONNECTIONS

1. This battery charger is for use on 110-120 Vac and 220- 240 Vac separately. Check your AC volt and make sure the version you take is correct.
2. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.
3. The plug pins must fit the receptacles. Do not use with an ungrounded system.
4. Never alter AC cord or plug provided. If it does not fit the outlet, have proper grounded outlet installed by a qualified electrician. Improper connection can result in a risk of an electric shock or electrocution.

## CHARGING INDICATION

When the charger is being used, it shows LED lights as follows, indicating the status of the charging.

### **NO AC Power** (all lights off)

There is no AC power applied. Check the AC end.



### **STAND BY** (green blinking only)

The clamps are not connected to battery properly.



### **CHARGING** (green & red lit)

The charger is charging the battery.



### **DEFECTIVE BATTERY** (yellow lit only)

The battery cannot hold a charge. Immediate replacement is recommended.



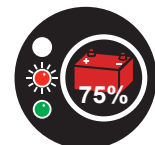
### **DEEPLY DISCHARGED BATTERY** (yellow blinking, green & red lit)

It takes more time to charge a deeply discharged battery. Replace the battery if the charger keeps indicating this stage.



### **75% CHARGED** (green lit & red light blinking)

The battery is 75% charged and ready for load test or can be returned to serve.



### **FULLY CHARGED** (green lit only)

The battery is fully charged. The charger will shift to the maintenance mold.



## TROUBLESHOOTING

**1. Problem: No LED lit.**

Possible Cause: **AC end is not making a good connection.**

Solution: **Check for poor connection at AC side.**

**2. Problem: Green LED keeps blinking.**

Possible Cause: **Clamps are not making a good connection.**

Solution: **Check for poor connection at battery and frame.**

**3. Problem: Yellow LED blinks/ Red lit/Green lit**

Possible Cause: **The battery is sulfated.**

Solution: **Try to charge the battery for 24 hrs. If the LED keeps lighting this way, replace the battery immediately.**

**4. Problem: Yellow LED lit right away when hooking onto battery.**

Possible Cause: **It is not a 12V battery.**

**Or, the battery is just charged.**

Solution: **Check if it is a 12V battery. The charger will give you a warning if you are connecting to the incorrect application.**

**Or, the battery is just charged with holding a high voltage. Re-clamp the battery after having the voltage drops back.**

**NOTE** that if the troubleshooting cannot fix the issue you have, please contact the distributor for the information.